Name:	Date:	Team:

# Lab Experiment # 10

## **Radiographic Grids and Scatter Radiation**

### **Direct Radiography**

#### **Purpose**

This experiment is designed to demonstrate the effect of scatter radiation on the visibility of detail in digital imaging.

#### Learning Objectives

After completing this lab, you should be able to:

- 1. Use the laboratory equipment properly.
- 2. Set up the control console and ceiling tube mount correctly.
- 3. Function effectively in group work.
- 4. Perform the experiment independently.
- 5. Set up the control console.
- 6. Explain the effect of scatter radiation on the visibility of detail of a digital image.
- 7. Determine which radiographic studies require the use of a radiographic grid.

#### **Materials Needed**

- Direct Radiography Wireless Image Receptor (FPD)
- ➤ Whole Body Phantom
- Set of radiopaque markers

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### **Experimental Setup**

#### Instructions for Exposure 1 – 4 using Bucky

- 1. Place a DR image receptor in the **bucky lengthwise** and set the SID to 40 inches.
- 2. Place the **Whole-Body Phantom** on the tabletop, positioned for various projections as indicated on the worksheet
- 3. Set the control console to **manual** mode.
- 4. Make exposure 1-3 using the settings indicated on the worksheet and derived from the technique chart.

### **Technique Worksheet**

**Direct Radiography Using Grid (Bucky)** 

### Worksheet

	Anatomy	mode	kV	mAs	Back-Up Time	Radiation Detectors	Density Selector	Grid	Grid Ratio	SID	TEI EI DI
1	Knee	manual						bucky	10:1	40"	
2	Pelvis AP	manual						bucky	10:1	40"	
3	Shoulder	manual						bucky	10:1	40"	
4	Chest AP	manual						bucky	10:1	40"	

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#### Instructions for Exposure 5 – 8 using the TT technique (non-grid)

- 1. Place a DR image receptor in the **bucky lengthwise**, **remove the radiographic grid**, and set the SID to 40 inches.
- 2. Place the **Whole-Body Phantom** on the tabletop, positioned for various projections as indicated on the worksheet
- 3. Set the control console to **manual** mode.
- 4. Calculate the new technique for exposures 5-8 using the Tabletop method and the Grid Conversion Factor (GCF), based on the exposure values obtained from the previous grid techniques (Exposures 1–4).

### **Direct Radiography NO Grid**

### Worksheet

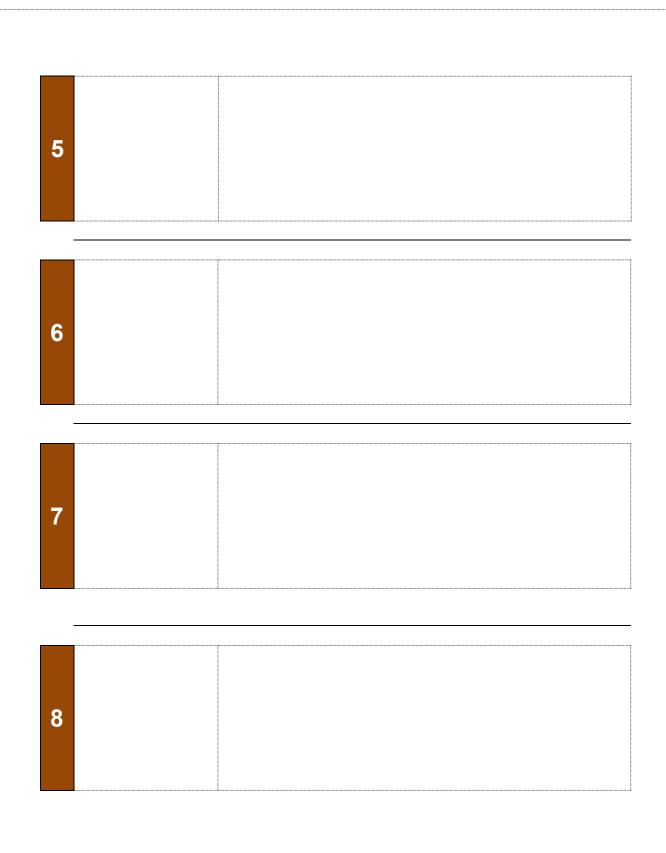
	Anatomy	mode	kV	mAs	Back-Up Time	Radiation Detectors	Density Selector	Grid	Grid Ratio	SID	TEI EI DI
5	Knee	manual						no	n/a	40"	
6	Pelvis AP	manual						no	n/a	40"	
7	Shoulder	manual						no	n/a	40"	
8	Chest AP	manual						no	n/a	40"	

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### Worksheet

	TEI EI DI	Briefly describe the fog (scatter) level of each image and the visibility of detail.
1		
2		
3		
4		

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